

DOMESTIC ENERGY ISSUES

Sustainable production and consumption of energy primarily focuses on the following objectives:

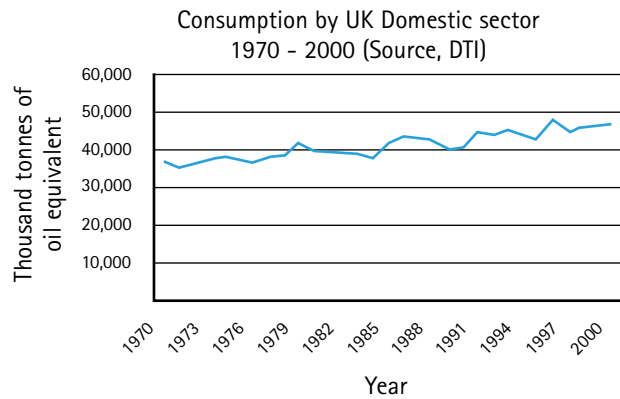
- the wise use of energy by civil society, incorporating efficiency
- educating consumers on energy source choices
- shift from fossil fuels to renewable forms of energy on the production side

Domestic energy in the UK accounts for 29% of electricity demand, about equal to that of the industrial sector (DTI - http://www.dti.gov.uk/energy/energystats/dukes1_14.xls). Energy is fundamental to modern lifestyles, for heating, lighting, cooking, transport and powering domestic goods. Climate change is now firmly set in the minds of civil society yet consumers apparently believe their individual contribution is somewhat limited - 'think locally act globally' has not really become a reality with UK energy consumers, despite several energy efficiency programmes to try to encourage change. However at governmental level the California energy crisis has been the catalyst for a number of governments and local authorities for reviewing and changing their energy investment strategies and policy framework.

Demand

CO₂ emissions from the domestic sector increased by 11% between 1990 and 2001. Overall, energy consumption for the domestic sector increased by 16.5% over the same period. This is largely a result of the increase in the number of households - energy use per household is currently at a similar level to 1990. (DTI)

The global demand for energy has continued to rise. This has resulted in a 50% increase in emissions of CO₂ between 1971 and 1995. From 1950-85 electricity output increased by 8 fold and this was mostly met by fossil fuels - coal and oil. Programmes for reducing UK domestic energy consumption have not been entirely successful. The clear success story has been the 'dash for gas' that has been the primary contributor to greenhouse gas reductions. Addressing this issue, the UK Prime Minister, Tony Blair, in a speech (London March 2001), said that 'changes to energy use would have to be made by setting the right level of energy consumption, by stimulating consumer demand for better environment, supporting science and innovation, encouraging efficient use of environmental resources and enhancing business options in renewable energy'. Hence, there needs to be a shift to sustainable energy generation with large amounts of investment targeted at these technologies.



KEY ISSUES CONSIDERED:

1. RESPONSE TO PIU ENERGY REVIEW

From the UK perspective, the working group supports the general direction of the UK Energy Review by the Policy Innovation Unit published in February 2002.

<http://www.piu.gov.uk/2002/energy/report/>

The review proposes strict targets for greatly improved energy efficiency and conservation as well as increases in renewable electricity generation. However, the key issues that were identified in the conclusions of the Review are:

- The need for a clear vision from the Government of a sustainable energy future. In the UK context the consensus is for a low carbon future
- The need to include all sectors in the strategy, including transport, and expanding the scope to include alternatives beyond electricity e.g. biofuels
- The integration of the UK Energy Policy within European and International energy pathways (e.g. technology transfer) leading to a harmonisation of policies and mechanisms
- The importance of maintaining future flexibility in terms of technological options
- The use of a mix of appropriate market and policy mechanisms.

2. TOP-DOWN IMPLEMENTATION

2.1 LOCAL AUTHORITIES AND THE PUBLIC SECTOR COMMITMENT

E1. RECOMMENDATION

There should be public sector and local government commitment to energy efficiency in purchasing decisions in order to help stimulate grassroots action.

It was agreed that an overall energy policy framework has to be in place to help stimulate grassroots action. The starting point should be with local authorities and the public sector demonstrating their commitment to energy efficiency through purchasing policies. This would serve to catalyse further changes by civil society in general.

Energy efficiency within the public sector has been marketed primarily by its cost effectiveness – as an authority in California stated, "Energy efficiency is an extremely important variable, not just because it's important to save our resources, but because it can save cities and counties precious dollars." It was found cheaper to invest in consumer energy efficiency campaigns than to construct new power stations to meet growing demand. Purchasing energy efficient technologies and products is another key ingredient of a viable environmental policy in the public sector. Public procurement can also be a significant factor in promoting new technologies in the competitive energy market. The innovative ways that local authorities and the public sector can take energy efficiency into account when making purchasing decisions will greatly influence the drive to a more sustainable energy future.

The obvious barrier to the public sector will be financial. It is therefore important that fiscal measures should be made available for appropriate procurement policies. In Denmark, for example, a subsidy scheme for energy-saving measures has had a positive effect in the government sector, corresponding to annual savings of 10 to 15 GWh from efforts in 1996 and 1997 alone, which equates to the reduction of approximately 10,000 tonnes CO₂.

See for example at:

<http://www.iclei.org/europe/ccp/summary-green-purchasing.pdf>

SPIRE Programme California

<http://www.lgc.org/techserve/spire/>

In California, US, they now offer a programme that provides financing and procurement assistance to municipalities for the installation of renewable energy systems. This is called Stimulating Public-sector Implementation of Renewable Energy (SPIRE).

SPIRE combines the State's buy-down rebate (up to 50% of system cost) with low-interest, long-term financing and aggregated procurement to make distributed generation a cost-effective option for the public-sector.

The benefits that are observed in the SPIRE programme include

- Stabilise long term energy prices and reduce future fossil fuel price risks for public facilities
- Utilise current state renewable energy incentives
- Budget for fixed energy costs
- Enjoy zero energy costs after loan repayments
- Set example of environmental stewardship for the community

For the community the benefits would include:

- Guide and attract economic development
- Demonstrate reliability of renewable technologies
- Reduce the need for large, central power plants
- Improve air quality

PRACTICAL ACTION

Central Government and Local Government Association (LGA) should develop policies and targets for local authorities and the public sector in energy efficiency and shifting from fossil fuels to low carbon technologies. The collection and dissemination of information by the LGA on policies and targets achieved should be made continually via the Internet thus providing a 'living' source of current information for all users.

2.2 CO-ORDINATION OF RESEARCH – DEMONSTRATION PROJECTS

E2. RECOMMENDATION

A single body/ commission/ trust should be established for sustainable energy, to co-ordinate all practical actions including research and development.

A considerable amount of funding and support for renewable

energy research is currently awarded by a variety of sources, including the Renewable Obligation, Engineering and Physical Sciences Research Council (EPSRC), Energy Efficiency Best Practice Programme, the Office of Science and Technology's (OST) and corporate bodies. However, the working group was concerned that there was no over-arching co-ordination of research and development. Communication via a single point of focus was recommended to encourage society and business to seek and disseminate information on practical actions now and to invest in R&D in future.

The increase in environmental emissions targets, nuclear decommissioning and the probable decline in fossil fuels will encourage growth in R&D of renewable technologies. Although it is in the DTI's Energy Group strategy to carry out co-ordination and information dissemination about such programmes the working group recommends that a 'sustainable body' be set up to co-ordinate all the research currently being developed in the UK. The body will then be able to use the information to identify areas requiring further work.

3. 'BOTTOM UP' STRATEGIES

3.1 RAISING AWARENESS

E3. RECOMMENDATION

Increasing public awareness and engagement is key to successful implementation of energy efficiency programmes. The UK Government should support and stimulate changes in public behaviour, to overcome barriers to a sustainable energy future.

It was agreed that the Government is not fully engaged with civil society over its energy policies. Therefore bottom-up strategies on 'marketing' green energy and energy use should be supported by a more creative awareness campaign for educating consumers on low carbon technologies and energy efficiency. Currently emphasis is on suppliers of electricity and business opportunities in energy efficiency, while programmes on domestic energy efficiency and green tariffs are limited and uninspiring.

Raising awareness with consumers will raise the demand for low carbon energy and will encourage more innovation and development. Currently London Electric (LE) has about 7,000 customers signed up to its Green Tariff, even though the tariff is at a higher cost than fossil fuel based sources. Although this may appear to be a large number, it only represents 0.47% of the total of 1.5 million households (figures from LE). LE promoted its Green Tariff extensively throughout London so it is surprising that so few

have made the switch. This suggests that civil society is either ill informed, cannot afford the increased tariff or simply does not care. www.london-electricity.co.uk/energy/home/green-tariff-1.html Further information on available Green Tariffs can be found at: www.ukenergy.co.uk/pages/green.htm

PRACTICAL ACTION

Establishment of a new town (or village) with near zero heating energy homes, local facilities, tele-working opportunities, safe cycle and walking routes, energy efficient public transport etc to show that a high quality of life is possible within a per capita carbon budget that is compatible with climate stabilisation.

3.2 RENEWABLE OBLIGATION

The awareness and supply of low carbon energy should be increased over the next couple of years as a result of the Renewable Obligation and take-up of Green Tariffs. Although criticised for its lack of ambitious long term goals the Renewable Obligation will indirectly raise consumer awareness as the electricity boards will continue to market renewable energies and therefore offer a choice.

Renewable Obligation

The Renewable Energy Obligation came into force on 1 April 2002. It requires that all suppliers of electricity must provide at least 3% of their electricity from renewable sources. The level of the obligation will rise each year up to 10% renewable sources by 2010. Renewable Obligation Certificates (ROCs) are awarded for each unit of renewable electricity they buy. At the end of each year, they must prove they have met the obligation by submitting the correct number of ROCs to the energy regulator OFGEM.

The full environmental costs need to be communicated to the consumers as the consensus view is that suppliers and consumers are enjoying a large and unsustainable environmental subsidy with fossil fuel based energy sources. It was suggested that the DTI, DEFRA and OFGEM should introduce a range of targeted fiscal measures (fixed and progressive taxes, subsidies for conservation) to reverse this trend and that OFGEM should reconsider whether minimisation of consumer price should be the sole aim of its future energy policy.

OFGEM should also improve consumer awareness of the full costs of the energy supply. 'OFGEM must immediately change its energy policy from one of price minimisation to minimisation of energy use or be disbanded and replaced with a regulatory authority which does this! Working Group Delegate

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PRACTICAL ACTION

UK Government should impose regulations on energy providers who increase the prices on Green Tariffs, particularly when they are providing less than those that are obligatory. Green Tariffs need not be more expensive and if the full costs of traditional generation are incorporated, they will not be.

PRACTICAL ACTION

Removal of Climate Change Levy

Remove the Climate Change Levy and apply a domestic carbon tax that is clearly and logically linked to the carbon emissions of the electricity supply. Introduce the carbon tax with a very clear public message and campaign, unlike the Levy which was quietly introduced and has continued to be relatively unnoticed. An effective implementation will be a clear motivator (price) combined with a clear message – "energy has environmental costs and we have to pay for them".

The carbon tax need not be too large to start with, as the purpose would initially be more symbolic, but it would restart a debate which has disappeared since the fuel protests in 2000.

This would greatly raise the profile of the energy debate. The campaign should give people choices – in energy supply, such as taking up alternative sources (domestic solar) and in energy efficiency. This aim is to make it cost neutral to choose environmentally beneficial options.

3.3 INSPIRING AWARENESS

E4. RECOMMENDATION

Initiatives that promote low carbon technologies and greater efficiency should be fun and inspiring, involving the community through schools, museums, galleries and other public buildings.

Involving children is key to introducing values of energy conservation and the use of renewables at an early age. This would also be important in influencing change in parents. "Pester power" will undoubtedly be exploited if children have been taught that their parents can purchase renewable energy instead of fossil fuels – "and for only a couple of pounds extra a month!" Devious? Yes – but inspiring.

A statement made in May 2002 by Arts Minister Tessa Blackstone called on cultural organisations sponsored by the government to do more to promote sustainability – "Museums, galleries and libraries

can provide neutral spaces where discussion can take place. We can engage the public in understanding the past, and in thinking about what might happen in future to make our society more sustainable. We must ensure that examples of good practice and lessons on what works are disseminated widely. People have to know what they can do, and feel encouraged that they can make a difference."

The National Museum of Science and Industry is already looking at ways to disseminate good energy practice and engaging debate through a number of schemes currently being finalised.

The National Museum of Science and Industry (NMSI), which includes the Science Museum, London, is addressing sustainable development issues in a number of ways. NMSI aims to champion sustainable development by leading by example through ensuring that their own activities and operations are sustainable. It is preparing plans that will drive NMSI's sustainable development agenda for the next decade.

These plans include:

- involving staff by identifying champions and forming 'Green Teams' in each museum to take the internal agenda forward;
- establishing a clear sustainable development policy and practice for NMSI, together with a set of sustainable development indicators;
- introducing, in stages, formal structures to conduct sustainable development operational audits, performance measures and monitoring systems;
- initiating a programme of reporting policy and performance to all stakeholders, including publishing an externally validated report;

As acknowledged in the recent report by Cabinet Office Performance and Innovation Unit on Resource Productivity, "simply getting people to think about the way in which they use and abuse natural resources will be one of the key elements of delivering cultural change." NMSI's overall purpose is to "engage people in dialogue, to create meanings from the past, present and future of human ingenuity." Instead of just providing abstract facts, the Science Museum's approach places the visitor at the centre of the issues concerned. Added to this is a fundamental value to champion sustainability.

A major project under development and seeking funding is the 'Energy Roof' project at the Science Museum. The Science Museum plan is to install a renewable energy roof (solar PV and demonstration wind turbine) for the main (East) Hall. Related exhibits – web-enabled exhibits – on energy, sustainability and climate change in the gallery spaces below will sketch a vision of how the world might be in 2020 and will:

- Demonstrate how the small-scale, daily choices everyone makes about how to travel or to use household appliances add up to the big picture of resource use and climate change.
- Showcase emerging technologies that will help us, as individuals or communities, take positive action to meet the challenges of climate change

'Creative Planet' is a major new NMSI initiative at its 545 acre site at Wroughton, near Swindon. This will be the national centre for sustainable development. It will be a centre for exposition, explanation, research and development into sustainability. The unrivalled collections of NMSI will be used to inform our understanding of the world in which we live and lead to a more sustainable future. It will be a major visitor and educational resource, a focus for research and development, and the creation of new business enterprises. It will also be a national information centre on sustainable technologies.

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3.4 INCREASING AWARENESS IN CHILDREN

Most initiatives involving children in energy efficiency campaigns are achieved in programmes through schools, for example the Energy Saving Trust's initiative SchoolEnergy www.schoolenergy.org.uk. These schemes focus primarily on saving costs for the school through reduced energy bills with only the underlying objective to reduce fossil fuels. Although increasing awareness in energy efficiencies, there is very little concerning low carbon energy sources. An example of a more enthusing project where the children become more practically involved is the Watt Watchers Programme in the US, which is similar but more hands-on than SchoolEnergy.

For example please see: <http://www.epsea.org/seed.html>

The most important element of involving the children is that the behavioural changes learnt in the school will be taken back to the home, where approximately 29% of all the electricity is used.

Other UK initiatives include:

- Scout group - Energy efficiency award badge:
http://www.scoutbase.org.uk/library/books/badge/o_eea.htm
National Energy Action (NEA) and the Scout Association are working in partnership with support from London Electricity and the Eaga Charitable Trust to promote energy efficiency within all the scout groups.
- Energy Chest (Funergy)
Energy Chest www.energychest.net, is an Esso sponsored site developed by CREATE, which again raises awareness among children on the Internet using an appealing cartoon style. Although it focuses on waste and energy, its sponsor has placed an obvious 'slant' to the message in the wording, "The earth is believed to be getting warmer and sea levels appear to be rising. More research is required to assess what is causing these apparent changes. In the meantime, to help slow down this rate of climate change we need to live more sustainable lives."

3.5 EDUCATION FOR ALL

It was stressed in earlier workshops that education should not be aimed only at younger age groups but should be extended to all ages. School/colleges/university courses should include energy awareness as part of an overall innovative communication programme on sustainable development. This should be developed by DfEE and the Council for Environmental Education - www.cee.org.uk and include sustainable development in the national curriculum.

3.6 HEALTH

Cost savings are an immediate bonus to conserving energy in the school and home. However the relationship to health should also be incorporated. A recent survey by the National Asthma Campaign in the UK found that one in eight children is currently being treated for asthma symptoms although one in five has been diagnosed with asthma at some point. This has not been directly associated with Climate Change, although the link between asthma, rising pollution levels and climate change is apparent (www.ama-assn.org/sci_pubs/msjama/articles/vol_287/no_17/jms0501023.htm) and currently being researched by the New York City Department of Health.

Further research into climate change and the effects upon health is needed and the results communicated to civil society - in particular asthma in children.

3.7 BEHAVIOURAL EVOLUTION

The principle achievement in increasing awareness should not just be about the cost savings but most importantly about behavioural change. Both young and old should be made aware of the links between an electric light/refrigerator /use of a car and carbon dioxide emissions, climate change and health such that they see how their personal actions can contribute to solving global problems for the benefit of everyone, especially themselves.

PRACTICAL ACTION

A TV series showing a positive vision of a low carbon future for the UK and the world should be developed. As well as making people aware of the consequences if climate change is not slowed down, a vision of how a high Quality of Life (not the same as standard of living, GDP per capita) should be developed and discussed, to show that a low carbon future could be fulfilling and enjoyable!

PRACTICAL ACTION

THE ENERGY CHALLENGE FUND

Examples and suggestions from civil society have been given above, involving initiatives with children through education, museums, communities and partnerships with business to promote awareness. Yet there is a need for an overall body to initiate, stimulate and support the type of projects in which society should be engaged. The working group suggested that this should be a funding/encouraging/engaging body that will provide feedback, ensure quality and address the challenges set by government and should be called the Challenge Fund Body.

The Challenge Fund will be set up to encourage community and public engagement, through flagship projects based on renewable energies and energy efficient technologies. The fund will initially focus on public buildings such as Town Halls, schools, community centres, hospitals, museums, local authorities, and following the success of these projects it can then be extended to all.

A specific challenge fund for these flagship projects should be set up by Central Government with extra funding from corporate sponsorship and through the National Lottery's New Opportunities Fund. Central Government funding could be received via existing funds within the DTI renewable energy programme, Climate Change Levy capital allowance scheme – which will make it visible to society that monies from the Levy are being put back into community development in much the same way as the Landfill Tax Credit Scheme. Corporate sponsorship could be seen as a new opportunity for companies to be involved in the community and provide effective eco-sponsorship – which is currently lacking in the UK. Communities should therefore be given the challenge to look for sponsorship within their area.

The fund would build on many initiatives to date and should be supported by the Sustainable Energy body.

Successful ventures would then be used to communicate best practice guidelines to communities via local authorities. This would include information on the most appropriate technologies for projects, installation, and advice set out in clear, jargon free language. It would promote examples of both success and failures. An obvious communication channel would be the Internet, although other innovative media should be considered to reach all stakeholders.

4. ENERGY PARTNERSHIPS

E5. RECOMMENDATION

Partnerships should be encouraged between business, government and the public to engage all stakeholders in achieving sustainable energy objectives.

Partnerships offer a strong basis for action, resource networks, community initiatives and an influential strategy to improve efficiency. It is important that the UK initiatives learn from the success of other programmes such as Rebuild America which focuses on energy efficient solutions as community solutions.

Rebuild America

"Strong partnership formation sets the foundation for lasting results, and assures that a partnership is broad-based within a community from the start. By involving community leaders, the partnership becomes both a "functioning entity" and one with community-wide "influence." Partnership formation begins with a lead organisation, or champion, whose job it is to sell the local community on how Rebuild America can benefit them. By getting "buy-in" from key leaders of local government, schools, community-based organisations, other public entities, and private industry, success is often not far behind." www.rebuild.org/

4.1 COMBINED HEAT AND POWER COMMUNITY PARTNERSHIPS

A short-term initiative would be to increase district and community heating schemes linked to electricity generation sources (community CHP). There are many examples throughout Scandinavia but only 70 recorded in the UK (See www.est.gov.uk for examples).

If the heating scheme is linked to a gas-fired generator, then the environmental benefit is greater efficiency per carbon emission unit. If the generation source is biomass or energy-from-waste, then it is effectively 'carbon neutral', with major environmental benefits. Similarly, wind power is increasingly being implemented on a community basis. The best practice could be shared and promoted by government working with the energy companies and prospective communities. Communities may need an initial incentive (e.g. lower prices) to take on a long-term energy solution, possibly by local business backing or partnerships.

Domestic solar power and domestic CHP will be more effectively promoted on a community partnership basis, rather than individual households taking up the option. Again, there is a key role for each of the partners, who could achieve far more collectively than the

present largely uncoordinated approaches.

4.2 MIXED TARIFFS

Another community partnership initiative could be to introduce mixed tariffs, energy conservation measures and other initiatives to target the fuel poor. There are a number of initiatives already in place by companies such as TXU Energy, some in response to the Energy Efficiency Commitment, others on a voluntary basis.

4.3 A COLLECTIVE FORCE

The ultimate partnership objective would be to test ways in which energy companies can move from selling a product (e.g. electricity) to providing a service (warmth, lighting etc). Without this, the overriding commercial driver for energy companies is to generate and sell more, rather than provide an increasingly efficient energy service. Local authorities, communities, business and local organisations should act together to initiate such schemes with the electricity suppliers.

5. ENERGY AND PROPERTY

E6. RECOMMENDATION

Property leasing companies must be targeted, as most commercial/residential tenants have little control/influence over the energy efficiency of their buildings.

Market inefficiencies are apparent where there are split responsibilities between landlord and tenant. The landlord is unlikely to be interested in the tenant's costs resulting in an inefficient building with the tenant having high energy bills. The government should address this issue by establishing building codes which would include double-glazing, efficiency standards for lighting, insulation, and refrigeration.

Although a new grant scheme to help councils, housing associations and registered social landlords (RSLs) to fight fuel poverty and climate change has been launched by the Energy Saving Trust it does not inspire private landlords to make changes.

For more information, contact the Energy Saving Trust's Practical help number on 0870 241 2089 or visit the www.practicalhelp.org.uk

Lambeth Case study

London Borough of Lambeth, in a consortium with ten other local authorities and local agencies, has initiated the Private Landlord Energy Award Scheme (PLEASE), which was granted funding by the Energy Saving Trust HECAAction Programme. The funding was targeted at the private sector landlords offering 50% grants towards energy efficiency measures, including central heating and insulation measures, with interest free loans to the value of 25% of the total measures also being offered. In an enterprising move to engage the private tenancy sector in a win-win situation of reduced costs and increase the attractiveness to let the property, the scheme had a disappointing number of applicants. Landlords do not want to put their hands in their pockets especially when they cannot see any immediate financial earnings.

PRACTICAL ACTION

The UK Government should establish codes requiring landlords to incorporate energy efficiency into all buildings. This should be supported by legislation, to ensure that cost effective efficiency measures are taken, and that in rented property there is a financial link between those that pay for improvements and those that pay for fuel bills.